

NOMENCLATURAL NOTES AND A SYNOPSIS OF MESOAMERICAN *STYLOGYNE* (MYRSINACEAE)

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ABSTRACT

A nomenclatural summary is provided for the species of the genus *Stylogyne* occurring in Mesoamerica. An updated description of the genus, along with a key to the species is provided. A key to distinguish *Ardisia*, and *Geissanthus* from *Stylogyne* is also provided. Five taxa are recognized, including the new combination *Stylogyne turbacensis* subsp. *laevis* (Oersted) Ricketson & Pipoly. All taxa are enumerated, nomenclatural and taxonomic synonyms provided, and six binomials are newly relegated to synonymy.

RESUMEN

Se ofrece un resumen de las especies mesoamericanas pertenecientes al género *Stylogyne*. Se incluye una descripción actualizada del género, acompañada de una clave para identificar las especies. Se ofrece también una clave para distinguir *Ardisia* y *Geissanthus* de *Stylogyne*. Se reconocen cinco taxa, incluyendo la nueva combinación *Stylogyne turbacensis* subsp. *laevis* (Oersted) Ricketson & Pipoly. Se enumeran los taxa, se ofrecen sinónimos tanto nomenclaturales como taxonómicos, y se relegan seis binómenos como nuevos sinónimos taxonómicos.

INTRODUCTION

The neotropical genus *Stylogyne* A. DC. comprises 63 species, of which 7 remain undescribed, owing to lack of adequate material. Understanding the systematic biology of this genus has long been problematic because of its sexual lability. Androdioecious, bisexual, polygamo-dioecious and dioecious species of *Stylogyne* have been documented (Pipoly 1989, 1991), as well as the consequent morphological variation due to sex expression. The genus has often been confused with *Geissanthus* J. D. Hooker (Agostini 1970) and *Ardisia* Swartz, from which it may be readily separated by the following key:

1. Calyx open in bud, the lobes 4–5, free or almost free, dextrorsely (rarely sinistrorsely) imbricate, quincuncial or contorted; corolla lobes dextrorsely (rarely sinistrorsely) imbricate, quincuncial or contorted.
2. Calyx and corolla lobes imbricate or quincuncial; corolla lobes not twisted in bud; ovules mostly pluriserial, or at times appearing uniserial when ovules few in a high anthotactic spiral; inflorescence rachis opaque..... **Ardisia**
2. Calyx and corolla lobes contorted; corolla lobes highly twisted in bud; ovules uniserial or rarely biserial; inflorescence rachis translucent pink to hyaline **Stylogyne**
1. Calyx closed in bud, rupturing irregularly into 2–8 lobes in the same inflorescence at maturity, fused for varying lengths, valvate; corolla lobes valvate or rarely imbricate **Geissanthus**

In preparing a treatment of the Myrsinaceae for Flora Mesoamericana, analysis of the species in the region revealed that the two most commonly known entities, *Stylogyne turbacensis* and *S. laevis*, become inseparable when reviewed over their entire range. The two species, separated by terminal vs. axillary inflorescence in Flora of Guatemala and Flora of Panama (Lundell 1966a, 1971) are now known to overlap significantly in terms of inflorescence position and morphology and occupy different habitats. Therefore, the latter is reduced to subspecific status. Below we provide an emended description of the genus, a key to the Mesoamerican species, and a nomenclator.

Stylogyne A. DC., Ann. Sci. Nat. Bot. 16:78. 1841.

Dioecious, bisexual, androdioecious or polygamo-dioecious *shrubs or small trees*. *Branchlets* mostly glabrous, rarely with simple hairs or translucent lepidote scales on the buds. *Leaves* alternate; blades mostly glabrous; petioles marginate or canaliculate. *Inflorescences* axillary or terminal, rarely axillary and terminal, corymbose or paniculate with the branches racemose or short umbellate-corymbose, sessile or subsessile to long pedunculate, mostly glabrous, rarely with simple trichomes. *Flowers* unisexual or bisexual, corymbose or umbellate, (4-)5-merous, pedicellate; sepals dextrorsely contorted and open in bud, free or short-connate basally, punctate and punctate-lineate, generally glabrous, rarely with simple hairs; petals dextrorsely contorted and highly twisted in bud, short-connate, commonly lineate, punctate and punctate-lineate, mostly glabrous; stamens of staminate and bisexual flowers usually shorter than the petals, the filaments slender, free from each other and adnate to the petals, inserted at petal base or above, the anthers oblong, subsagittate basally, dorsifixed or basifixed, twisted at anthesis, usually dehiscent by latrorse longitudinal slits, rarely first by apical pores then widening by slits; staminodes of pistillate flowers similar to stamens but reduced in size, the antherodes devoid of pollen; pistil of pistillate and bisexual flowers obturbinate, the ovary ovoid, the style long, subequaling

or exceeding the stamens, the stigma punctiform, the placenta ovoid, or globose, basal; ovules 3-5, uni- or rarely biseriate; pistillode of staminate flowers lageniform, the ovary hollow, the style subcapitate, less than 1 mm long. *Fruit* drupaceous, 1-seeded, the endocarp crustaceous or osseous; seed globose or depressed, the endosperm corneous, excavate, not ruminant, the embryo transverse, elongate.

A neotropical genus distributed from Mexico through Mesoamerica, the Andes and Amazonia to SE Brazil, and throughout the Caribbean. In Mesoamerica, there are four species known. In general, members of the genus are infrequently found along watercourses in gallery forests in savannas, in humid, moist, wet or pluvial cloud forests, premontane forests and lowland forests. Members of the genus tolerate very little disturbance and thus, their presence is useful as an indicator of environmental quality.

KEY TO *STYLOGYNE* OF MESOMERICA

1. Leaf blades bullate, minutely puberulent, the margins serrate 1.. *S. hayesii*
1. Leaf blades smooth, glabrous, the margins entire.
 2. Inflorescence axillary, sessile or subsessile, corymbose or racemose.
 3. Inflorescence racemose; pedicels 3–3.5 mm; anthers strictly longitudinally dehiscent; fruits 5.5–6.5 mm in diameter. 2. *S. darienensis*
 3. Inflorescences corymbose, pedicels 0.5-2 mm; anthers dehiscent by pores opening into longitudinal slits; fruits 4.0–5.0 mm diameter 3. *S. glomeruliflora*
 2. Inflorescences terminal and/or axillary, paniculate.
 4. Leaf blades obovate to oblanceolate, subcoriaceous, the punctations conspicuous above; inflorescences pyramidal-paniculate, mostly terminal, or occasionally terminal with few reduced axillary inflorescences 4a. *S. turbacensis* subsp. *turbacensis*
 4. Leaf blades elliptic to oblong, coriaceous, the punctations inconspicuous from above; inflorescences columnar-paniculate, mostly axillary or rarely axillary and terminal or pseudoterminal. 4b. *S. turbacensis* subsp. *laevis*

1. ***Stylogyne hayesii*** Mez in Engler, *Pflanzenr.* 9(IV. 236):272. 1902. TYPE: PANAMA. DARIÉN: In thick woods, Manmer Station [Manené], Panama Railroad, 15 Oct 1862, *S. Hayes* 662 (HOLOTYPE: G-BOIS; ISOTYPES: BM, K, P).

Distribution and ecology.—Lowland pluvial forests of the Chocó Floristic Province of Panama and Colombia, sea level–600 m elevation.

Stylogyne hayesii is rare in Panama, but extremely common in the Andes, on the western slopes of the Cordillera Occidental at the junction of the Chocó and Antioquia Departments of Colombia. The small, axillary inflorescences and deeply to shallowly serrate leaf margins are distinctive.

2. ***Stylogyne darienensis*** Lundell, *Wrightia* 5:68. 1974. TYPE: PANAMA. DARIÉN: Slopes of Cerro Chucla, drainage of Río Pavarando, 11 Feb 1972, *A. Gentry* 4261 (HOLOTYPE: LL-TEX; ISOTYPES: BM, MO).

Distribution and ecology.—Lowland wet forest, ca. 100 m elevation, known only from the southeastern Darién of Panama.

3. ***Stylogyne glomeruliflora*** Cuatrec., *Revista Acad. Colomb. Ci. Exact.* 8:326. 1951. TYPE. COLOMBIA. VALLE DEL CAUCA: Drainage of Río Digua, Río San Juan, below Queremal, 1,300–1,500 m, 19 Mar 1947, *J. Cuatrecasas 23847* (HOLOTYPE: F; ISOTYPE: COL).

Distribution and ecology.—Premontane pluvial forest, 100–1,500 m elevation, Chocó Floristic Province of Panama and Colombia. Inclusion of this species here is the first report for Mesoamerica.

4. ***Stylogyne turbacensis*** (Kunth) Mez

With the aid of recent collections, most notably from northern Colombian populations, we interpret *Stylogyne turbacensis* to include *S. laevis* because the inflorescence variation virtually eliminates the differences (terminal vs. axillary) used by Lundell (1966a, 1971) to separate them in his treatments of the family for Guatemala and Panama, and necessitating the new combination below. Fieldwork conducted by Pipoly in Nicaragua, Costa Rica, Panama and Colombia has shown that subspecies *turbacensis* tends to be locally common (the individuals clustered) on ridge or hilltops in lowland forests and in premontane forests, while subspecies *laevis* is more equally distributed through lowland wet or humid forests and in gallery forests surrounded by savanna vegetation. We follow the subspecies concept defined by Pipoly (1987), “groups of populations within a single lineage of ancestor-descendant populations that show variation by unique combinations of plesiomorphies, or homoplastic apomorphies, correlated with biogeography and/or ecology. This rank is primarily used to convey information regarding variation in the life histories of these populations and character state differences hypothesized to be the result of this variation. The subspecific rank in no way attempts to predict speciation events.” The differences regarding staminal exertion indicated in Lundell’s treatment of the family for the Flora of Guatemala and the Flora of Panama treatments are a function of sexual expression, so that in each subspecies, staminate flowers have anthers slightly exerted, while pistillate and bisexual ones have them included in the corolla. On the other hand, pistillate and staminate flowers have long styles on the pistil and pistillode, respectively, while in bisexual flowers, the style is shorter.

- 4a. ***Stylogyne turbacensis*** (Kunth) Mez subsp. ***turbacensis***. *Ardisia turbacensis* Kunth in H.B.K., *Nov. Gen. Sp.* 3:244. 1818. *Timus turbacensis* (Kunth) Kuntze, *Revis. Gen. Pl.* 2:975. 1891. *Stylogyne turbacensis* (Kunth) Mez in Engler, *Pflanzenr.* 9(IV. 236): 270. 1902. TYPE. COLOMBIA. ANTIOQUIA: Near Turbo [Turbaco]. *A. von Humboldt & A. Bonpland 1446* (HOLOTYPE: P-BONPL).

Cissus pentandra Willd. ex Roem. & Schult., Syst. Veg. 3:248. 1827. TYPE. COLOMBIA. Without further locality, *Willdenow Herb.* 3005 (HOLOTYPE: B-WILLD, n.v.)

Stylogyne guatemalensis Blake, Contr. U.S. Natl. Herb. 24:16. 1922. TYPE. GUATEMALA. IZABAL: Quebradas, 19–22 May 1919, *H. Pittier* 8624 (HOLOTYPE: US; ISOTYPE: NY).

Stylogyne oaxacana Lundell, *Wrightia* 4:72. 1968. SYN. NOV. TYPE. MEXICO. OAXACA: Distrito de Tuxtepec, Chiltepec and vicinity, 22 m, 12 Jul 1940, *G. Martínez-Calderón* 19 (HOLOTYPE: LL-TEX; ISOTYPES: GH, UC- n.v. US).

Stylogyne perpunctata Lundell, Bull. Torrey Bot. Club 69:398. 1942. SYN. NOV. TYPE. BELIZE [BRITISH HONDURAS]: STANN GRASS CREEK DISTRICT: Silk Grass Creek Reserve, 10 Sep 1939, *P. H. Gentle* 2990 (HOLOTYPE: MICH; ISOTYPES: K, LL-TEX, NY).

Distribution and ecology.—On hilltops or ridgetops of humid lowland tropical forest, to the premontane transition zone, 0–1,000 m elevation; Oaxaca and Veracruz, Mexico, southward through Mesoamerica to Colombia, then southward to Peru and eastward to the Venezuelan Andes.

Populations corresponding to the type of *Stylogyne guatemalensis* are notable only for their widely obovate leaf blades and terminal inflorescence relatively longer than most Mesoamerican populations of subspecies *turbacensis*. *Stylogyne oaxacana* was described largely because of its relatively smaller inflorescence and sepals, and longer style. The type of *Stylogyne perpunctata* has punctations and punctate-lineations more numerous and more brightly orange in color than the average for the subspecies, but is otherwise identical. All these variations overlap and no correlations can be found with ecology or phytogeography.

4b. *Stylogyne turbacensis* (Kunth) Mez subsp. *laevis* (Oerst.) Ricketson & Pipoly, comb. et stat. nov. *Ardisia laevis* Oersted, Vidensk. Meddel. Dansk Naturhist. Fören Kjøbenhavn 1861:125. 1861. *Tinus laevis* (Oerst.) Kuntze, Revis. Gen. Pl. 2:974. 1891. *Stylogyne laevis* (Oerst.) Mez in Engler, Pflanzenr. 9(IV. 236):268. 1902. TYPE. COSTA RICA. CARTAGO: "Monte [Irazú] Irasu, Jan 1847 *A. Oersted* 28 (LECTOTYPE by Lundell (1966b): C).

Ardisia ramiflora Oerst., Vidensk. Meddel. Dansk Naturhist. Fören Kjøbenhavn 1861:125 1861. *Tinus ramiflora* (Oerst.) O. Kuntze, Revis. Gen. Pl. 2:975. 1891. *Stylogyne ramiflora* (Oerst.) Mez in Engler, Pflanzenr. 9(IV. 236):272. 1902. TYPE. NICARAGUA. ZELAYA: prope Tortuga, Apr 1847, *A. Oersted* 31 (LECTOTYPE by Lundell, 1966b: C).

Ardisia guatemalensis Mez in Engler, Pflanzenr. 9(IV. 236):92. 1902. SYN. NOV., *non Stylogyne guatemalensis* Blake, Contr. U.S. Natl. Herb. 24:16. 1922. TYPE. NICARAGUA. CHONTALES: Acoyapa, 15 Feb 1841, [GUATEMALA. Aioyapa, misinterpreted by Mez], *E. von Friedrichsthal* 857 (HOLOTYPE: W).

Stylogyne reticulata Mez in Engler, Pflanzenr. 9(IV. 236):269. 1902. SYN. NOV. TYPE. COLOMBIA. CAUCA: Near Popayán, *J. Goudot s.n.* (HOLOTYPE: P).

Stylogyne nicaraguensis Lundell, *Wrightia* 3:110. 1964. SYN. NOV. TYPE. NICARAGUA. Zelaya: La Esperanza, Río Grande, 0–15 m, 10 Apr 1949, *A. Molina* 2125 (HOLOTYPE: F).

Stylogyne standleyi Lundell, *Wrightia* 3:110. 1964. SYN. NOV. TYPE. PANAMA. CANAL ZONE: Barro Colorado Island in Gatun Lake, less than 120 m, 18–24 Nov 1925, *P. Standley* 41048 (HOLOTYPE: US; ISOTYPE: BM).

Distribution and ecology.—Moist to wet lowland tropical forest and gallery forest in savannas, 0–800 m. Veracruz, Mexico, southward through Mesoamerica to Colombia.

Populations corresponding to the type of *Stylogyne ramiflora* have larger leaves and correspondingly smaller inflorescences, with stamens inserted higher on the petals than the average. Those features are common to staminate plants of the subspecies in scattered locations throughout its geographic range. The type of *Ardisia guatemalensis* is in fruit, and thus, Mez may simply have mistaken it for an *Ardisia* species, because it possesses no other notable feature. Populations represented by the type of *Stylogyne reticulata* Mez are diminutive in terms of inflorescence and leaf size. Populations from the eastern coast of Nicaragua corresponding to the type of *Stylogyne nicaraguensis* are notable only for their prominent orange punctations and punctate-lineations, rather than the more brownish colored punctations and lineations found more commonly throughout the range of the taxon. The type of *Stylogyne standleyi* is notable only for its larger leaves and inflorescences. These variations, uncorrelated with habitat and based mostly on quantitative characters, all overlap when materials are examined throughout the range of the subspecies.

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